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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 1404

INDUSTRIAL AIR HOSE

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For each individual country the only valid standard is the national standard of that country.

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BRIEF HISTORY

The ISO Recommendation R 1404, *Industrial air hose*, was drawn up by Technical Committee ISO/TC 45, *Rubber*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question led to the adoption of Draft ISO Recommendation No. 1404, which was circulated to all the ISO Member Bodies for enquiry in December 1967. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Austria	Iran	Sweden
Brazil	Israel	Switzerland
Czechoslovakia	Italy	U.A.R.
France	Japan	United Kingdom
Germany	Netherlands	U.S.S.R.
Greece	New Zealand	Yugoslavia
Hungary	Poland	
India	Spain	

The following Member Bodies opposed the approval of the Draft :

Ireland
U.S.A.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

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INDUSTRIAL AIR HOSE

INTRODUCTION

This ISO Recommendation has been prepared to provide minimum acceptable requirements for the satisfactory performance of rubber industrial air hose.

The list of nominal bores given in Table 1 (based on the R 10 series of preferred numbers) is not intended to be restrictive and will not preclude the manufacture of sizes outside this list which may be the subject of individual national standards.

1. SCOPE

This ISO Recommendation specifies the requirements of industrial air hose suitable for a maximum design working pressure of 1.0 MN/m^2 and a test pressure of 2.5 MN/m^2.

NOTE. – Since hoses for heavy duty pneumatic services such as mining, rock drilling, etc., will have more exacting material and test requirements, these are the subject of a separate specification.

2. MATERIALS

The hose should be made with a rubber lining resistant to oil mist, with a reinforcement of natural or synthetic fibres and a rubber cover.

3. CONSTRUCTION

3.1 The lining and cover should be of uniform thickness, be reasonably concentric, free from air holes, porosity and other defects and should be of the thickness specified.

3.2 The lining should also be as smooth in the bore as is consistent with good manufacturing practice.

3.3 The cover of the mandrel built type hose should have a cloth marked finish and the whole should be consolidated by wrapping.

3.4 The hose should be uniformly vulcanized.

4. DIMENSION AND TOLERANCES

4.1 Bore

The bore of the hose should be in accordance with the nominal dimensions and tolerances given in Table 1.

TABLE 1 – **Nominal bore**

Dimensions in millimetres

Nominal bore	Tolerance	Nominal bore	Tolerance
5	±0.50	20	±0.75
6.3	±0.75	25	±1.25
8	±0.75	31.5	±1.25
10	±0.75	40	±1.50
12.5	±0.75	50	±1.50
16	±0.75		

NOTE. – If special cases call for extra sizes :

(*a*) for smaller or larger dimensions further numbers should be chosen from the R 10 series of preferred numbers with tolerances as given in ISO Recommendation R 1307, *Rubber hose – Bore sizes, test pressures and tolerances on length*;

(*b*) for intermediate dimensions, numbers should be chosen from the R 20 series of preferred numbers with the tolerances as for the next larger bore size from the R 20 series.

4.2 Length

The tolerances on cut lengths of hoses should be as given in Table 2.

TABLE 2 – **Tolerances on cut lengths**

Dimensions in millimetres

Length	Tolerance
up to 300	± 3.0
over 300 to 600	± 4.5
over 600 to 900	± 6.0
over 900 to 1200	± 9.0
over 1200 to 1800	±12.0
over 1800	±1 %

5. PHYSICAL TESTS ON FINISHED HOSE

5.1 Tensile strength and elongation at break of rubber lining and cover

The rubber used for the lining and cover of the hose should, when tested in the manner described in ISO Recommendation R 37,* *Determination of tensile stress-strain properties of vulcanized rubbers*, have a tensile strength and elongation at break not less than the values given in Table 3.

TABLE 3 – **Tensile strength and elongation at break**

	Tensile strength MN/m^2	Elongation at break %
Lining	5.0	200
Cover	7.0	300

5.2 Accelerated ageing test

After ageing for 72 hours at a temperature of 70 °C as described in ISO Recommendation R 188, *Accelerated ageing or simulated service tests on vulcanized natural or synthetic rubbers*, the tensile strength and elongation at break of the lining and cover should not vary by more than ± 25 % and + 10 % to − 30 % respectively from the initial values.

5.3 Hydrostatic test

A sample cut from the hose should be subjected to a hydrostatic pressure as described in ISO Recommendation R 1402, *Hydrostatic testing of rubber hose*, and should not burst at a pressure less than 5.0 MN/m^2.

5.4 Adhesion test

Where suitable test pieces can be prepared (see clause 5.2 of ISO Recommendation R 36) test in accordance with ISO Recommendation R 36,** *Determination of the adhesion strength of vulcanized rubbers to textile fabrics.*

5.5 Low temperature test

To be included when the test method has been agreed.

5.6 Fitting compatibility

The hose should be capable of accepting the insertion of a plug gauge of a size 5 % above the nominal internal diameter and having a tapered lead-in to assist entry.

5.7 Resistance of lining to oil mist

To be included when the test method has been agreed.

6. MARKING

The marking, if required, should be as agreed between manufacturer and user.

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* 2nd Edition – 1968.

** 2nd Edition – 1969.

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